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The U.S. Department of Navy Office of Naval Research releases the:

Department of the Navy Rapid Innovation Fund Broad Agency Announcement

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Department of the Navy Rapid Innovation Fund

EXECUTIVE SUMMARY

The goal of the Department of Navy (DoN) Rapid Innovation Fund is to transition innovative technologies that resolve operational challenges or save costs into DoN Acquisition programs. The DoN seeks mature prototypes for final development, testing, evaluation, and integration. Those selected for award may receive up to \$3 million in Rapid Innovation Funding and will have up to two years to perform the work. There is a source selection preference for technologies coming from small businesses. There are two phases in the source selection process: white paper submission and full proposal submission. Full proposals submission is upon invitation only. DoN funds available for award are approximately \$45-65 million.

1.0 GENERAL INFORMATION

1.1 Introduction

This publication constitutes a Broad Agency Announcement (BAA) issued pursuant to Section 4201 of the National Defense Authorization Act for FY 2013, Public Law 112-239, and the Consolidated and Further Continuing Appropriations Act, 2013, Public Law 113-6, and as contemplated in Federal Acquisition Regulation (FAR) Part 35.016 and 6.102(d)(2). This BAA is issued by Office of Naval Research on behalf of DoN organizations. A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued.

The Office of Naval Research (ONR) will not issue paper copies of this announcement. ONR reserves the right to fund all, some or none of the proposals in response to this announcement. ONR provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this BAA will not be returned. It is the policy of ONR to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

1.2 Agency Name

Office of Naval Research, One Liberty Center 875 N. Randolph Street Arlington, VA 22203-1995

1.3 Research Opportunity Title

Department of the Navy (DoN) Rapid Innovation Fund

1.4 Program Name -

N/A

1.5 Research Opportunity Number

ONRBAA13-020

1.6 Response Dates and Key Dates

Event	Date	Time
BAA is released	07/29/2013	
Due Date for Questions	08/28/2013	3:00 p.m. EST
Website Opens for White Paper Submissions	08/14/2013	
BAA Closes for White Papers	09/30/2013	3:00 p.m. EST
Full Proposals Due	30 days after invitation	
Notification of Selection for Awards	02/25/2014 - 04/25/2014 *	
Contract Awards	04/11/2014 - 07/10/2014 *	

^{*}These dates are estimates as of the date of this announcement.

The DoN Rapid Innovation Fund BAA is open for 60 days for Offerors to submit white papers. The final due date for white papers to be considered under this BAA is no later than 3:00 PM (EST) on Monday 30 September 2013. White papers are to be submitted electronically via the Internet only at the following website: www.navysbirprogram.com/NavyRIF. If an Offeror does not submit a white paper by the specified due date and time, it is not eligible to participate in the subsequent Full proposal submission process and is not eligible for funding. The anticipated due date for full proposals is 30 days after the invitation is issued. It is anticipated that final selections will be made within four to six weeks after full proposal submission. As soon as the final full proposal evaluation process is completed, firms selected for funding will be notified via e-mail.

1.7 Point(s) of Contact

Questions of a business nature shall be directed to the cognizant Contract Specialist, as specified below:

Business Point of Contact:

Sean Palmer Contracting Officer Office of Naval Research ONR Code: BD 254

Address: Office of Naval Research, 875 N. Randolph Street, Arlington VA 22203-1995

Email Address: sean.m.palmer@navy.mil

Questions of a security nature shall be submitted to:

Diana Pacheco Industrial Security Specialist Office of Naval Research Security Department, Code 43

Address: Office of Naval Research, 875 N. Randolph Street, Arlington VA 22203-1995

Email Address: diana.pacheco@navy.mil

Questions of a technical nature may be directed to the cognizant Technical Point of Contact, as specified below:

Bob Smith

Director, Technology Transition Initiatives

Office of Naval Research ONR Code: 03TTX

Address: Office of Naval Research, 875 N. Randolph Street, Arlington VA 22203-1995

Email Address: robert.l.smith6@navy.mil

Alternatively, questions of a technical nature may be directed to one of the Naval Systems Command (SYSCOM) Points of Contacts, as specified below:

Naval Facilities Engineering Command (NAVFAC)

Philip Vitale

Deputy Director, Ocean Facilities Program Naval Facilities Engineering Command

Address: 1322 Patterson Avenue SE Suite 1000, Washington, DC 20374

Email Address: philip.vitale@navy.mil

Naval Supply Systems Command (NAVSUP)

Mark Deebel Program Manager

Address: 5450 Carlisle Pike, Building 309, Mechanicsburg, PA 17055

Email Address: mark.deebel@navy.mil

U.S. Marine Corps (USMC) Systems Command

Dave Ungar USMC CTO

Address: 2200 Lester Street, Quantico, VA 22134

Email Address: <u>david.m.ungar@usmc.com</u>

Naval Sea Systems Command (NAVSEA)

Allen McConnell

NAVSEA Rapid Innovation Fund Program Lead

Address: EA05T (Bldg 197 2W-3000), 1333 Isaac Hull Ave. SE, Washington Navy Yard, 20376

Email Address: allen.mcconnell@navy.mil

Naval Air Systems Command (NAVAIR)

Rebecca Ahne

Deputy Chief Technology Officer, Naval Air Systems Command (AIR-4.0T)

Address: 48150 Shaw Road, Bldg 2109, Patuxent River, MD 20670

Email Address: Rebecca.Ahne@navy.mil

Space and Naval Warfare Systems Command (SPAWAR)

Dr. Robert Parker

SPAWAR Deputy Chief Technology Officer (DCTO) Address: 4301 Pacific Highway, San Diego, CA 92110

Email Address: robert.parker@navy.mil

Strategic Systems Programs (SSP)

Mark Hrbacek

Future Capabilities Manager (SP2024)

Address: 1250 10th Street SE Suite 3600, Washington Navy Yard, DC 20374-5127

Email Address: Mark.Hrbacek@ssp.navy.mil

<u>Note</u>: All UNCLASSIFIED communications shall be submitted via e-mail. All questions of an UNCLASSIFIED nature to a Technical Point of Contract (POC) shall be sent via e-mail with a copy to the designated Business POC.

CLASSIFIED questions shall be handled through the ONR Security POC. Specifically, any entity wanting to ask a CLASSIFIED question shall send an email to the ONR Security POC with a copy to both the appropriate Technical POC and the Business POC stating that the entity would like to ask a CLASSIFIED question. DO NOT EMAIL ANY CLASSIFIED QUESTIONS. The Security POC will contact the entity and arrange for the CLASSIFIED question to be asked through a secure method of communication.

Questions submitted within two weeks prior to a deadline may not be answered, and the due date for submission of the white paper and/or full proposal will not be extended.

1.8 Amendments

Amendments will be posted to one or more of the following web pages:

- Federal Business Opportunities (FEDBIZOPPS) Webpage https://www.fbo.gov/
- ONR BAA Webpage http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx
- Defense Innovation Marketplace http://www.defenseinnovationmarketplace.mil/RIF2013.html

Although other web pages may repost these amendments, Offerors are advised that only the FEDBIZOPPS web page is the official record.

1.9 Instrument Type(s)

The type of funding instrument selected by the Government will be either a contract, cooperative agreement, or other transaction. If a contract is selected as the funding instrument, a firm fixed price contract, or a cost type contract in accordance with FAR Part 16, Contract Types will be used. If a cooperative agreement is selected, the award will be in accordance with DoD 3210.6-R, Department of Defense Grant and Agreement Regulations. Other transactional authority will be in accordance with 10 U.S.C 2371. Awards may be made consistent with 10 U.S.C. 2358, 10 U.S.C. 2361, and 10 U.S.C. 2374(a). Contract type and funding arrangements are at the discretion of the Government.

1.10 Catalog of Federal Domestic Assistance (CFDA) Numbers 12.300

1.11 Catalog of Federal Domestic Assistance (CFDA) Titles

Department of Defense (DoD) Basic and Applied Scientific Research

1.12 Other Information

THIS ANNOUNCEMENT IS NOT FOR THE ACQUISITION OF TECHNICAL, ENGINEERING AND OTHER TYPES OF SUPPORT SERVICES.

2.0 AWARD INFORMATION

Awards will be made based on the best full proposals that are determined to be most beneficial to the Government with appropriate consideration given to the evaluation factors, order of importance, and selection preferences. Awards will be made to the Offerors whose offer is determined to provide the "best value" to the Government based on the factors/preferences. This may not necessarily be the proposal offering the lowest cost/price or receiving the highest evaluated rating.

Offerors will be notified by the DoN Organization to which they submitted their response if their offer has been selected for award. Evaluation of white papers and proposals will be expedited, but no information on evaluation status will be available until the final selection is made. However, Contracting Officers may contact any and all qualified Offerors at any time. Notification of white paper and proposal selection is not an authorization to begin work. Offerors will be notified of non-selection.

Debriefings will not be provided after any government evaluation or selection decision.

Upon award of a funding instrument, the Offeror will be required to make certain legal commitments through acceptance of a contract, cooperative agreement, or other transaction that the DoN Contracting Organization deems is in the best interest of the government.

The amount of funding made available to this BAA will be approximately \$45-65 million and the funding actually awarded will depend on the quality of the proposals received. In addition, the Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. The Government may remove Offerors from award consideration should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time, or if the Offeror fails to provide requested additional information in a timely manner.

Pursuant to the statutory requirement that Rapid Innovation Fund projects expedite the transition of innovative technology into acquisition programs, contracts issued using Rapid Innovation Funds may contain options for further research, testing, and low rate initial production (LRIP) to be funded by acquisition programs.

In the case of funded proposals for the production and testing of prototypes, ONR may during the contract period add a contract line item or contract option for the provision of advanced component development or for the delivery of additional prototype units. However, such a contract addition shall be subject to the limitations contained in Section 819 of the National Defense Authorization Act for Fiscal Year 2010.

3.0 ELIGIBILITY

All responsible sources from academia and industry may submit proposals under this BAA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit

proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation.

Federally Funded Research & Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this BAA. However, teaming arrangements between FFRDCs and eligible principal bidders are allowed so long as they are permitted under the sponsoring agreement between the Government and the specific FFRDC.

Naval laboratories and warfare centers as well as other Department of Defense and civilian agency laboratories are also not eligible to receive awards under this BAA and should not submit either white papers or full proposals in response to this BAA. As with FFRDCs, these organizations may team with responsible sources from academia and industry that are submitting proposals under this BAA.

University Affiliated Research Centers (UARCs) are eligible to submit proposals under this BAA unless precluded from doing so by their Department of Defense UARC contracts.

Teams are also encouraged and may submit proposals in any and all areas. However, if teaming Offerors must be willing to cooperate and exchange software, data and other information in an integrated program with other contractors, as well as with system integrators, selected by the Government. Nothing in this section is intended to coerce or violate firms' retention of data rights in accordance with the applicable data rights clauses in the DFARS.

Some topics may cover export controlled technologies. Research in these areas is limited to "U.S. persons" as defined in the International Traffic in Arms Regulation (ITAR) – 22 CFR § 1201.1 et seq.

For Cooperative Agreement and Other Transaction Agreement applications:

The Federal Funding Accountability and Transparency Act of 2006 (Public Law 109-282), as amended by Section 6202 of Public Law 110-252, requires that all agencies establish requirements for recipients reporting information on subawards and executive total compensation as codified in 2 CFR 33.110. Any company, non-profit agency or university that applies for financial assistance (either grants, cooperative agreements or other transaction agreements) as either a prime or sub-recipient under this BAA must provide information in its proposal that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR 33.220. An entity is **exempt** from this requirement **UNLESS** in the preceding fiscal year it received: a) 80 percent or more of its annual gross revenue in Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; b) \$25 million or more in annual gross revenue from Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; and c) the public does not have access to information about the compensation of the senior executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 or section 6104 of the Internal Revenue Code of 1986.

4.0 WHITE PAPER PREPARATION AND SUBMISSION INSTRUCTIONS

4.1 White Papers

White papers may address a Defense-Wide Rapid Innovation Science and Technology Thrust Area (Attachment 1) and should address one or more of the Naval Operational Challenge Areas (Attachment 2)

contained in this announcement. Only unclassified white papers will be accepted. If an Offeror does not submit a white paper before the specified closing date and time in Section 1.6, the Offeror will not be eligible to submit a subsequent proposal. The Government's decision to invite a full proposal will be based upon the evaluation results of the white paper submission. Offerors that do not receive invitations from the Government to submit a proposal are not eligible to submit proposals. White papers should focus on one operational need per paper. There is no limit on the number of white papers an Offeror may submit in response to this BAA.

4.2 White Paper Format

The white paper is limited to six pages within a single file Portable Document Format (PDF) plus a one-page Quad Chart (see Attachment 3). The white paper cover sheet is included in the six page limit. Pages submitted in excess of the white paper page limit will not be read or evaluated.

- Electronic format PDF
- Paper Size 8.5 x 11 inch paper
- Margins 1 inch (including Header and Footer)
- Header- Times New Roman, 12 point
- Footer-Times New Roman, 12 point
- Spacing single-spaced
- Font Times New Roman, 12 point
- File naming convention "White Paper_Offeror's Organization Name_Proposed Project Title," e.g. "White Paper_ACME Inc._Shipboard Electrical System"

NOTE: 1) Do not send hardcopies of White Papers (including facsimiles) as only electronic submissions will be accepted and reviewed; 2) Do not attach .ZIP files; 3) Do not attach password protected files; 4) Perform a virus check before uploading the technical concept file. If a virus is detected, it may cause rejection of the proposal. The technical proposal should be a <u>single file</u>, including Gantt or other work plan charts and attachments/enclosures. Do <u>not</u> lock or encrypt the file you upload.

4.3 White Paper Content

Create a single PDF file that includes a Cover Sheet and Technical Concept and Project Description.

4.3.1 Cover Sheet (1 Page – (PDF File))

The cover sheet shall be labeled DoN Rapid Innovation Fund WHITE PAPER, and shall include the BAA number, firm name, CAGE code, DUNS number, proposed project title, related Small Business Innovative Research (SBIR) Topic number (if applicable), Internal Research and Development (IR&D) project identification (if applicable), amount of Rapid Innovation Fund funds requested, Offeror's administrative and technical point of contacts (name/phone and fax numbers/email), SYSCOM and Program Executive Office (PEO) that your project is targeted towards (if known), relevant Naval Operational Challenge Areas (pick from list in Attachment 2), Target DoN Acquisition Category (ACAT) I – IV program or other DoN acquisition program (if known), and the names of and contact information for up to two DoN acquisition community personnel familiar with or supportive of this project. Your cover sheet must also include the following statement: "(Firm Name) hereby affirms that the Project proposed herein has not been

proposed to any other FY13 DoD-sponsored Rapid Innovation Fund Broad Agency Announcement." Your cover sheet will count as the first page of your White Paper. Do not include classified information in any section of your white paper.

4.3.2 Technical Concept and Project Description (5 Pages – (PDF File))

Begin your technical proposal on page 2 (as the Cover Sheet is page 1) and put your firm name, short project title, and your firm's proposal number in the header of each page of this section. A page count will be provided in this section, page numbering format is undefined (recommend centered and within the footer). The header and footer information may be included in the one inch margins. Include the following information in not more than 5 pages not including cover page and Quad Chart.

- (1) <u>Project Description/Executive Summary</u> Describe what you intend to do and the product(s) to be delivered at the end of your efforts. (300 words or less)
- (2) <u>Offeror Technical Capability</u> Describe how your proposed technical approach is innovative, feasible, achievable, complete, and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks. (150 words or less)
- (3) <u>Value to the DoN</u> Describe how your proposed project addresses one or more of the applicable DoN Rapid Innovation Fund program goals. (425 words or less)
 - **3.1 Enhances Military Capability** Describe how your proposed project significantly increases or improves the Department's military capabilities in relationship to the identified Naval Operational Challenge Area and relevant DoN acquisition program. If applicable describe relevancy to a DOD Rapid Innovation Fund Thrust Area.
 - **3.2** Accelerates Military Development Capability Describe how your proposed project accelerates the development and ability to deploy military capabilities required for use by the Department of the Navy.
 - **3.3 Reduces Costs** Describe how your proposed project reduces the development, acquisition, sustainment, demilitarization, or total ownership costs of the identified fielded system or acquisition program.
- (4) <u>Project/Management Approach</u> Describe your management approach and overall project plan including major project tasks, duration, technology readiness level (TRL), task costs (Rapid Innovation Fund and supplemental funds, if applicable), and deliverables that you would anticipate providing by the end of this effort to the government using a Gantt chart or similar master planning tool. Focus on the proposed Rapid Innovation Fund project, but include funding and efforts required to fully transition the project into a DoN acquisition program or otherwise transition the technology into field use. (425 words or less, exclusive of Gantt chart or master planning tool output)

(5) Cost Effectiveness

- **5.1 Cost Realism** Describe the methods (e.g., expert judgment, analogous estimating, parametric estimating) used to ensure that the proposed costs are realistic for the technical approach proposed and sufficient to transition it to fielded use. (125 words or less)
- **5.2 Supplemental Funds** Describe other (additional) funds, if any, expected to complete the project including the timing, source, amount, and planned use of the funds. Describe funding dependencies, if any or known, such as a firm commitment from a government organization, Tier 1 or 2 Industry Partner and/or Internal Research and Development, which may be critical to the completion of a task. (125 words or less)
- (6) <u>Transition Plan</u> –Describe how the technology and/or product will transition into the DoN acquisition program, including insertion events into military systems or programs. (150 words or less)
 - **6.1 Partnerships:** Describe the roles that the DoN program manager, prime systems integrator, and/or other stakeholders, as applicable, will play in supporting the proposed project during the Rapid Innovation Fund effort and through transition. Include the names of the organization(s) and contact information for personnel involved in the transition process.
 - **6.2 Government Testing**: Note accreditations, tests, and/or certifications required to prove that the technology works and is acceptable to be transitioned into the operational Naval Forces, including requirements from agencies other than the DoN (e.g., National Security Agency certification, Defense Information Systems Agency Information Assurance Certification & Accreditation), if necessary and known. Describe the seminal transition event (e.g., test or certification) that signifies the technology is ready to be acquired by the DoN. Indicate the beginning and ending TRL. Provide evidence to support the initial TRL.
 - **6.3 Facilities/Equipment:** Briefly describe the instrumentation and physical facilities necessary to carry out the proposed effort. As applicable, briefly discuss the need for government facilities, government furnished equipment (GFE), government furnished information (GFI), or subject matter expertise, and how you plan to address them during the effort. Note whether you anticipate using Rapid Innovation Funds to purchase a server.

4.3.3 Quad Chart (1 Page – (PDF File)):

Submit an unclassified quad chart as a separate PDF file. Use the format of either Attachment 3 (PowerPoint template) or Attachment 4 (Word template). Set the page orientation to be "Landscape." The quad chart shall be only 1 page and contain the information prescribed by the templates.

Company Trademarks or government command logos shall only be used in the upper left corner and should not distract or impair the readability of the required content of the Quad Chart.

Do not include classified information in any section of your quad chart.

4.4 Submission of White Papers

The white paper and quad chart shall be prepared outside of the DoN Rapid Innovation Fund submission website and then uploaded to the submission site [www.navysbirprogram.com/NavyRIF]. The decision to request a proposal will be based upon the white paper submission. Ensure your white paper and quad chart adequately describe the proposed approach and resulting contributions.

The white papers and quad charts submitted under this BAA are required to be unclassified. Confidential/classified white papers and quad charts are not permitted. Hard copies of white papers and quad charts WILL NOT BE CONSIDERED.

4.5 White Paper Evaluation and Notification

DoN evaluations of the white papers will be issued via email notification using the timeline stated in Section 1.6, Response Dates and Key Dates.

4.6 Submission of Late Proposals (White Papers)

Any proposal, modification, or revision, that is received at the designated Government office after the exact time specified for receipt of proposals is "late" and will not be considered unless it is received before award is made, the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and

- a) If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or
- b) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals; or
- c) It was the only proposal received.

Acceptable evidence to establish the time or receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The contracting officer must promptly notify any Offeror if its proposal, modifications, or revision was received late and must inform the Offeror whether its proposal will be considered.

5.0 PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

5.1 Proposals

Offerors that receive a request to submit proposals shall provide sufficient information to persuade the Government that the proposed project represents an innovative approach to accelerating the transition of defense-related technologies. The DoN Component Contracting Officer requesting the proposal has the right to deviate from the proposal format and content described below. Deviations from the information provided in this announcement will be detailed in the proposal invitation letter. Only unclassified proposals will be accepted. Instructions for the preparation of full proposals will be included in the invitation letter requesting the proposal. The format provided in the invitation for full proposal submission is the authoritative source and takes precedence over the format and content provided in this announcement. Failure to fully comply with the proposal instructions may result in the proposal not being considered for contract award.

The anticipated invitation to submit a full proposal will be issued via email notification in accordance with the timeline in Section 1.6, Response Dates and Key Dates. The due date for receipt of full proposals is 3:00 PM (EDT) 30 days after invitation. Full proposals received after the published due date and time may not be considered for funding.

5.2 Proposal Format

The full proposal will include four sections; Cover Sheet, Technical Proposal, Cost or Price Proposal, and Performance Work Statement (PWS). The Technical Proposal is limited to 25 pages. The Cover Sheet, Cost or Price Proposal, and PWS are not included in the technical section page limit. The Cover Sheet is limited to 1 page. The Cost or Price proposal does not have a page limit. The PWS is limited to 12 pages. There shall be no cost/price information in the technical proposal and no technical information in the Cost or Price Proposal. Pages submitted in excess of the technical proposal and/or PWS page limit will not be read or evaluated.

- Electronic format (PDF)
- Paper Size 8.5 x 11 inch paper
- Margins 1 inch (will include Header and Footer)
- Header- Times New Roman, 12 point
- Footer- Times New Roman, 12 point
- Spacing single-spaced
- Font Times New Roman, 12 point

5.3 Proposal Content

Create a single file in PDF that includes the following four sections in the order described below: Cover Sheet, Technical Proposal, Cost or Price Proposal, and Performance Work Statement.

5.3.1 Cover Sheet (1 Page – (PDF File))

The cover sheet shall be labeled DoN Rapid Innovation Fund Full Proposal and shall include the BAA number, firm name, CAGE code, DUNS number, proposed project title, SBIR Topic number (if applicable), IR&D project identification (if applicable), amount of Rapid Innovation Fund funds

requested, Offeror's administrative and technical points of contact (name/phone and fax numbers/email), SYSCOM and PEO that your project is targeted towards, Naval Operational Challenge Area, target ACAT I – IV program or other acquisition program, if known, and the names of and contact information for up to two DoN acquisition community personnel familiar with or supportive of this project.

5.3.2 Technical Proposal (25 Pages – (PDF file))

The technical proposal shall be prepared outside of the DoN Rapid Innovation Fund submission website. The technical proposal shall include the following sub-sections in the order given below:

- (1) **Project Description/Executive Summary:** Describe what you intend to do and the product(s) to be delivered at the end of your efforts.
- (2) <u>Offeror Technical Capability</u>: Describe how the proposed technical approach is innovative, feasible, achievable, complete, and supported by a technical team that has the expertise and experience to accomplish the proposed tasks.
 - **2.1 Objectives and Scope:** Describe the specific objectives of what the project will achieve and any boundaries. Describe the product that will be delivered at the end of the Rapid Innovation Fund effort.
 - **2.2 Key Personnel:** Describe the qualifications of the team and identify key personnel who will be involved in the effort including information directly related to education and experience. Identify any subcontractors or consultants who will be involved. Identify any foreign citizens you expect to be involved as a direct employee, subcontractor, or consultant. Key personnel resumes shall be provided in an attachment to the proposal and will not count toward the page limitations.
 - **2.3 Related Work:** Describe significant activities and/or previous work directly related to the proposed effort, including SBIR/STTR contracts and IR&D projects.

(3) Value to the DoN:

- **3.1 Contribution to the Operational Need:** Describe how and the degree to which the technology will increase, accelerate, or improve the DoN's capabilities in relationship to one or more of the Naval Operational Challenge Areas cited in Attachment 2 of this announcement. If applicable describe relevancy to one or more of the Defense-Wide Rapid Innovation Science and Technology Thrust Areas (Attachment 1).
- **3.2 Reducing Costs:** Describe how and the extent to which your project will reduce development, acquisition, sustainment, demilitarization, and/or total ownership for the DoN. If possible, provide a rough estimate of DoN's cost savings or cost avoidance due to the fielding of your technology.
- (4) **Project/Management Approach:** Describe how the proposed schedule is achievable for the proposed technical approach. Transition to military systems or programs is expected within 24 months of award.

- **4.1 Project Plan:** Describe your overall project plan including major project tasks, duration, TRL, and task costs (Rapid Innovation Fund and supplemental) using text and a Gantt chart or similar master planning tool. Describe major activities/milestones and list deliverables anticipated by date, including research and development, testing, integration, transition milestones including the seminal transition event, and/or acquisition elements, as applicable. Focus on the proposed Rapid Innovation Fund project, but include funding and efforts required to fully transition the project into a DoN acquisition program or otherwise transition the technology into field use.
- **4.2 Subcontractor/Consultant Management Plan:** If using subcontractors or consultants describe your plan for managing their role in the project's success.
- **4.3 Metrics/Measures of Success:** Discuss what measurement criteria will be established to measure progress against stated objectives.
- **4.4 Risks:** Describe anticipated risks and risk mitigation plans.
- (5) <u>Cost Effectiveness</u>: Describe the project's cost approach that supports the execution of the three previous sections
 - **5.1 Cost Estimating Methods:** Briefly describe the methods (e.g., expert judgment, analogous estimating, parametric estimating) used to estimate the task costs you cited in your response to Section (3) Project/Management Approach. Identify any significant corporate judgment and/or experience in the application of techniques to address cost estimation and cost control.
 - **5.2 Supplemental Funds:** Describe any other project funds, if applicable, that will come from other sources, including the timing, source, amount and planned use. Describe funding dependencies, if any or known, such as a firm commitment from a government organization, Tier 1 or 2 Industry Partner and/or Internal Research and Development, which may be critical to the completion of a task. Estimate costs the government partner(s) will incur during the 24-month Rapid Innovation Fund project (e.g., equipment, facilities, personnel).
- (6) <u>Transition Plan</u>: Describe how the technology and/or product will transition into the DoN acquisition program, including insertion events into military systems or programs.
 - **6.1 Partnerships:** Describe the roles that the DoN program manager, prime systems integrator, and/or other stakeholders, as applicable, will play in supporting the proposed project during the Rapid Innovation Fund effort and through transition. Include the names of the organization(s) and contact information for personnel involved in the transition process.
 - **6.2 Government Testing**: Note accreditations, tests, and/or certifications required to prove that the technology works and is acceptable to be transitioned into the operational Naval Forces, including requirements from agencies other than the DoN (e.g., National Security Agency certification, Defense Information Systems Agency Information Assurance Certification & Accreditation), if necessary and known. Describe the seminal

transition event (e.g., test or certification) that signifies the technology is ready to be acquired by the DoN. Indicate the beginning and ending TRL. Provide evidence to support the initial TRL.

6.3 Facilities/Equipment: Describe the instrumentation and physical facilities necessary to carry out the proposed effort. If access to government facilities, GFE, GFI, or subject matter expertise is required, describe them and the contract mechanism (e.g., Cooperative Research and Development Agreement, Work for Private Party Agreement) that will be or could be used to access them. If such a contract mechanism is already in place, provide documentation. Note whether you anticipate using Rapid Innovation Funds to purchase a server.

5.3.3 Cost or Price Proposal (no page limit – (PDF file))

The cost or price proposal shall be prepared outside of the DoN Rapid Innovation Fund submission. The cost/price proposal shall include a detailed breakdown of all costs by category. If a proposal is selected for award, the Offeror shall be prepared to submit further documentation to its DoN Contracting Officer to substantiate costs. For more information about cost proposals and accounting standards, see the Defense Contract Audit Agency (DCAA) publication called "Information for Contractors" available at www.dcaa.mil. The following cost areas shall be included, if applicable:

- (1) **Direct Labor:** Individual labor category or person, with associated labor hours and unburdened direct labor rates.
- (2) **Indirect Costs:** Fringe Benefits, Labor Overhead, General & Administrative, etc.
- (3) **Travel:** Destination, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.
- (4) **Subcontractor and Consultants:** Provide detailed substantiation of subcontractor and consultant costs in your cost proposal. Provide consultant agreement or other document that verifies the proposed daily/hourly rate.
- (5) Other Direct Costs (ODCs): ODCs shall be itemized with costs or estimated costs.

5.3.4 Performance Work Statement (PWS) (12 Pages – (PDF file)

A PWS shall be submitted that clearly details the scope and objectives of the effort, the tasks to be completed, the technical approach, and the deliverables to be provided to the government. It is anticipated that the proposed PWS will be incorporated as an attachment to the resultant award instrument. To this end, such proposals must include a PWS without any proprietary restrictions.

5.4 Submission of Proposals

The full proposals submitted under this BAA are required to be unclassified. Confidential/classified proposal papers are not permitted.

NOTE: 1) Do not send hardcopies of full proposal (including facsimiles) as only electronic submissions will be accepted and reviewed; 2) Do not attach .ZIP files; 3) Do not attach password protected files; 4) Perform a virus check before uploading the file. If a virus is detected, it may cause rejection of the proposal. Do not lock or encrypt the file you upload.

Hard copies of white papers and full proposals WILL NOT BE CONSIDERED.

5.5 Submission of Late Proposals (Full Proposals)

Any proposal, modification, or revision, that is received at the designated Government office after the exact time specified for receipt of proposals is "late" and will not be considered unless it is received before award is made, the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and

- a) If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or
- b) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals; or
- c) It was the only proposal received.

However, a late modification of an otherwise timely and successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

Acceptable evidence to establish the time or receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The contracting officer must promptly notify any Offeror if its proposal, modifications, or revision was received late and must inform the Offeror whether its proposal will be considered.

5.6 Commitment to Small Business

The DoN is strongly committed to providing meaningful subcontracting opportunities for small businesses, small disadvantaged businesses, woman-owned small businesses, HUBZone small businesses, veteran-owned small businesses, service disabled veteran-owned small businesses, historically black colleges and universities, and minority institutions through its awards.

For proposed awards to be made as contracts that exceed \$650,000 to other than small businesses, the Offeror is required to submit a Subcontracting Plan in accordance with FAR 52.219-9. As such, Subcontracting Plans will be evaluated to ensure that submissions are compliant with FAR Subpart 19.7

For proposed awards made as contracts to small businesses at any value or to other than Small Businesses that are less than \$650,000, the Offeror shall provide a statement which demonstrates how it intends to provide meaningful subcontracting opportunities to support this policy.

5.7 Proposal Evaluation and Notification

It is anticipated that final selections will be made within four to six weeks after full proposal submission. As soon as the final full proposal evaluation process is completed, Offerers will be notified via email of their project's selection or non-selection for funding. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Offerors may be removed from award consideration should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time, or if the Offeror fails to timely provide requested additional information.

6.0 OPPORTUNITY DESCRIPTION AND EVALUATION INFORMATION

This BAA is primarily for the validation and transition of technologies developed by small businesses including those developed under the SBIR program and IR&D that directly support DoN needs and programs. Section 7.1 states the criteria for qualifying as a small business. IR&D is defined in FAR 31.205-18(a).

The R&D efforts to be funded under this BAA will consist primarily of Advanced Component Development and Prototypes, and the funds available to support awards are Budget Activity 4. The proposed DoN Rapid Innovation Fund effort must advance the technology by validating and demonstrating the capability in a realistic environment. Technology maturity will be identified to assess technical risks for candidate proposals in direct support of major defense acquisition programs, programs of record, or the next phase of research and development. For purposes of this BAA, DoN seeks a TRL between 6 and 7 at project initiation and 7 or greater at the end of the 24-month Rapid Innovation Fund project. In circumstances of exceptional technical merit, proposals with a lower TRL rating will be considered for award.

Work funded under a BAA **may also** include basic research, applied research and some advanced research. With regard to any restrictions on the conduct or outcome of work funded under this BAA, ONR will follow the guidance on and definition of "contracted fundamental research" as provided in the Under Secretary of Defense (Acquisition, Technology and Logistics) Memorandum of 24 May 2010.

As defined therein the definition of "contracted fundamental research," in a DoD contractual context, includes [research performed under] grants and contracts that are (a) funded by Research, Development, Test and Evaluation Budget Activity 1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Activity 2 (Applied Research) and performed on campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.

Pursuant to DoD policy, research performed under grants and contracts that are a) funded by Budget Activity 6.2 (Applied Research) and NOT performed on-campus at a university or b) funded by Budget Activity 6.3 (Advanced Research) does not meet the definition of "contracted fundamental research." In conformance with the USD(AT&L) guidance and National Security Decision Direction 189, ONR will

place no restriction on the conduct or reporting of unclassified "contracted fundamental research," except as otherwise required by statute, regulation or Executive Order. For certain research projects, it may be possible that although the research being performed by the prime contractor is restricted research, a subcontractor may be conducting "contracted fundamental research." In those cases, it is the *prime contractor's responsibility* in the proposal to identify and describe the subcontracted unclassified research and include a statement confirming that the work has been scoped, negotiated, and determined to be fundamental research according to the prime contractor and research performer.

Normally, fundamental research is awarded under grants with universities and under contracts with industry. Non-fundamental research is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of such research results due to subject matter sensitivity. Potential Offerors should consult with the appropriate ONR POCs to determine whether the proposed effort would constitute basic research, applied research or advanced research.

FAR Part 35 restricts the use of Broad Agency Announcements (BAAs), such as this, to the acquisition of basic and applied research and that portion of advanced technology development not related to the development of a specific system or hardware procurement. Contracts and grants and other assistance agreements made under BAAs are for scientific study and experimentation directed towards advancing the state of the art and increasing knowledge or understanding.

Those selected for award may receive up to \$3 million in Rapid Innovation Fund funding (exclusive of supplemental funds from other sources); developmental efforts can be completed within 24 months; preference will be shown for technologies that can be available to the operational Naval Forces within 12 months of Rapid Innovation Fund project completion. Funds available for awards are approximately \$45-65 million, contingent upon acceptable proposals.

The goal of the DoN Rapid Innovation Fund is to transition innovative technologies that resolve operational challenges or save costs into acquisition programs. In order to be considered, white papers and full proposals should clearly identify and define how the proposed technology satisfies a Naval Operational Challenge Area and show a clear transition path into an acquisition program or as a fielded prototype system.

6.1 Evaluation Criteria (White Papers and Full Proposals)

Award decisions will be based on a competitive evaluation of proposals resulting from a technical and cost review. Evaluations will be conducted using the following evaluation criteria. Criterion 1 and Criterion 2 (inclusive of its two sub factors) are significantly more important than Criteria 3, 4, and 5, which are of equal value. Within Criterion 2, Sub-Criterion 2a and 2b are of equal value.

- (1) **Offeror Technical Capability** including the innovation, feasibility, achievability, and completeness of the technical approach and the expertise and experience of the proposed technical team.
- (2) Value to the DoN including:
 - a. <u>Operational Need</u> how the Project is relevant to the identified Naval Operational Challenge Area and/or acquisition program identified in the white paper/proposal; and
 - b. Reducing Costs the degree to which it reduces the development, acquisition,

sustainment, or demilitarization costs of fielded systems or acquisition programs.

- (3) **Project/Management Approach** including how the Project will be executed and completed within 24 months after contract award, how the TRL will be matured and validated, the strategy to field the technology within 12 months after project completion, and how the team, including subcontractors/consultants, will be managed.
- (4) **Cost Effectiveness** including how the project's cost is reasonable and realistic, and the ability to complete the total project within the proposed cost (not more than \$3 million in Rapid Innovation Fund funding) or the ability to obtain supplemental funds, if required, to complete the project and transition it to fielded use.
- (5) **Transition Plan** the strategy and probability for the transition of this effort into an acquisition program or fielded prototype to include level of support, knowledge of the steps and factors that would be required to achieve successful transition, and validity of an insertion funding commitment at the conclusion of the Rapid Innovation Fund project.

6.2 Selection Preferences

In addition to the evaluation criteria, source selection authorities will use the following selection preferences, listed in order of priority:

- (1) White papers from small businesses.
- (2) White papers from other than small businesses.

6.3 Evaluation Panel

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-4 and 15.207. The cognizant DoN Rapid Innovation Fund Program Manager and/or other Government subject matter experts will perform the evaluation of technical proposals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants and/or administrative support. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employee having access to technical and cost proposals submitted in response to this BAA will be required to sign a non-disclosure statement prior to receipt of any proposal submissions.

7.0 AWARD ADMINISTRATION INFORMATION

7.1 North American Industry Classification System (NAICS) code

The NAICS code for this announcement is <u>541712</u> with a small business size standard of <u>500</u> World Wide employees.

If a small business (prime) proposer is partnering with a non-small business on the effort, the small business must perform 51% of the cost of the work or greater for qualification as a "small business project."

7.2 System for Award Management:

All Offerors submitting proposals or applications must:

- a. be registered in the System for Award Management (SAM) prior to submission;
- b. maintain an active SAM registration with current information at all times during which it has an active Federal award or an application under consideration by any agency; and
- c. provide its CAGE code and DUNS number in each application or proposal it submits to the agency.

The System for Award Management (SAM) is a free web site that consolidates the capabilities you used to find in CCR/FedReg, ORCA, and EPLS. Future phases of SAM will add the capabilities of other systems used in Federal procurement and award processes.

SAM may be accessed at https://www.sam.gov/portal/public/SAM/

NOTE TO FORMER CCR REGISTRANTS: If you had an active record in CCR, you have an active record in SAM. You do not need to do anything in SAM at this time, unless a change in your business circumstances requires a change in SAM in order for you to be paid or to receive an award. SAM will send notifications to the registered user via email 60, 30, and 15 days prior to expiration of the record. You can search for registered entities in SAM by typing the DUNS number or business name into the search box.

<u>NOTE</u>: SAM, Subcontracting Plan requirements and Certification requirements are all set forth in the ONR Technical and Cost Proposal Template.

<u>Grants, Cooperative Agreements and Normal Other Transaction Agreements (OTAs) Certification Requirements:</u>

Grant and Cooperative Agreement awards greater than \$100,000, as well as OTAs not under Section 845, require a certification of compliance with a national policy mandate concerning lobbying. Grant, applicants shall provide this certification by electronic submission of SF424 (R&R) as a part of the electronic proposal submitted via Grants.gov (complete Block 17). The following certification applies likewise to each cooperating agreement and normal OTA applicant seeking federal assistance funds exceeding \$100,000.

CERTIFICATION REGARDING LOBBYING ACTIVITIES

- (1) No Federal appropriated funds have been paid or will be paid by or on behalf of the applicant, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal

contract, grant, loan, or cooperative agreement, the applicant shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The applicant shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

8.0 OTHER INFORMATION

8.1 Government Property, GFE and Facilities

Government research facilities and operational military units are available and should be considered as potential government-furnished equipment/facilities. These facilities and resources are of high value and some are in constant demand by multiple programs. It is unlikely that all facilities would be used for any one specific program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors submitting proposals should indicate in the Technical and Cost Proposal, which of these facilities are critical for the project's success.

8.2 Security Classification

In order to facilitate intra-program collaboration and technology transfer, the Government will attempt to enable technology developers to work at the unclassified level to the maximum extent possible. If access to classified material will be required at any point during performance, the Offeror must clearly identify such need.

8.3 Use of Animals and Human Subjects in Research

If animals are to be utilized in the research effort proposed, the Offeror must complete a DoD Animal Use Protocol with supporting documentation (copies of **AAALAC** accreditation and/or NIH assurance, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. For assistance with submission of animal research related documentation, contact the ONR Animal Use Administrator at (703) 696-4046.

Similarly, for any proposal for research involving human subjects, the Offeror must submit or indicate an intention to submit prior to award: documentation of approval from an Institutional Review Board (IRB); IRB-approved research protocol; IRB-approved informed consent form; proof of completed human research training (e.g., training certificate or institutional verification of training); an application for a DoD-Navy Addendum to the Offeror's DHHS-issued Federal wide Assurance (FWA) or the Offeror's DoD-Navy Addendum. In the event that an exemption criterion under 32 CFR.219.101 (b) is claimed, provide documentation of the determination by the Institutional Review Board (IRB) Chair, IRB vice Chair, designated IRB administrator or official of the human research protection program including the category of exemption and short rationale statement. This documentation must be submitted to the ONR Human Research Protection Official (HRPO), by way of the ONR Program Officer. Information about assurance applications and forms can be obtained by contacting ONR 343 contact@navy.mil. If the

research is determined by the IRB to be greater than minimal risk, the Offeror also must provide the name and contact information for the independent medical monitor. For assistance with submission of human subject research related documentation, contact the ONR Human Research Protection Official at (703) 696-4046.

For contracts and orders, the award and execution of the contract, order, or modification to an existing contract or order serves as notification from the Contracting Officer to the Contractor that the HRPO has approved the assurance as appropriate for the research under the Statement of Work and also that the HRPO has reviewed the protocol and accepted the IRB approval or exemption determination for compliance with the DoD Component policies. See, DFARS 252.235-7004.

8.4 Recombinant DNA

Proposals which call for experiments using recombinant DNA must include documentation of compliance with Department of Human and Health Services (DHHS) recombinant DNA regulations, approval of the Institutional Biosafety Committee (IBC), and copies of the DHHS Approval of the IBC letter.

8.5 Department of Defense High Performance Computing Program

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S & T and RDT & E communities with use-access to very powerful high performance computing systems. Awardees may be eligible to use HPCMP assets in support of their funded activities if Program Office approval is obtained and if security/screening requirements are favorably completed. Additional information and an application may be found at http://www.hpcmo.hpc.mil/.

8.6 Organizational Conflicts of Interest

All Offerors and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any DoN technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the Offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the Offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval, a contractor cannot simultaneously be a SETA and a research and development performer. Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be rejected without technical evaluation and withdrawn from further consideration for award. If a prospective Offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Offeror should promptly raise the issue by sending his/her contact information and a summary of the potential conflict by e-mail to the Business Point of Contact identified in the proposal invitation letter, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Contracting Officer after full consideration of the circumstances, any conflict situation cannot be effectively avoided or mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

8.7 Reporting Executive Compensation and First-Tier Subcontract Awards

The FAR clause 52.204-10, "Reporting Executive Compensation and First-Tier Subcontract Awards," will be used in all procurement contracts valued at \$25,000 or more. A similar award term will be used in all grants and cooperative agreements.

Attachment 1: Defense-Wide Rapid Innovation Science and Technology Thrust Areas

- 1. **Enhancing Energy Security and Independence**. For investment in technologies that will improve energy efficiency, enhance energy security, and reduce the Department's dependence on fossil fuels through advances in traditional and alternative energy storage, power systems, renewable energy production and more energy efficient ground, air, and naval systems.
- 2. Developing, Utilizing & Maintaining Advanced Materials. For a broad range of materials technologies that can provide: Enhanced performance in extreme environments; improved strength and reduced weight for the spectrum of applications ranging from aerospace to lighter soldier loads; greater survivability of ground, air, and naval systems; and reduced life cycle costs through better maintainability for a wide variety of the challenging environments and unique properties demanded of military systems. Such materials could include advanced composites and metals, nanomaterials, and rare-earth alternatives.
- 3. Improving Manufacturing Technologies and Capabilities. For advanced and innovative manufacturing technologies across the spectrum of applications to significantly compress design to production time cycles, reduce cost, minimize waste and energy consumption, and improve product quality and reliability. Based on coordination with the Office of the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy, needed manufacturing technology advances include: Advanced joining techniques (e.g., composite bonding, friction stir welding, and laser welding) for shipbuilding, aviation and combat vehicle programs; flexible automation and advanced robotics to improve the yield of critical parts; techniques for improving transparent ceramics that satisfies performance, cost, and weight goals for both Soldier and weapon system armor; additive manufacturing to fabricate parts in a layer-by-layer fashion directly from a digital design; manufacturing for portable power such as fuel cells; electronics manufacturing for short wave infrared, photonics / radio frequency components and three-dimensional chip stacking including thermal management; and secure network applications that provide for secure protocol transfer, integrated data sharing, and protection of intellectual property.
- 4. Advanced Microelectronics. The development of resilient advanced microprocessors, application- specific integrated circuits, field programmable gate arrays, printed circuit boards, photonics devices, and other related electronics components for the next-generation of military and intelligence systems, including commercial-off-the-shelf (COTS) technologies or applications for the Advanced Components for Electronic Warfare (ACE) Program: Developing integrated photonic circuits (IPC); millimeter-wave source and receiver components for EW (MMW); reconfigurable and adaptive RF electronics (RARE); and heterogeneous integration for photonic sources (HIPS).
- **5. Developing Cybersecurity Tools**. Full-spectrum cyberspace operations require full situational awareness of the battlespace in the cyber domain that allow for complementary offensive and defensive actions. To support this requirement, develop and demonstrate capabilities to rapidly

and thoroughly enumerate, characterize, and visualize friendly, neutral, and adversary networks down to the device level. Specific elements of interest include: Cooperative and non-cooperative mapping techniques/capabilities, including internet and network mapping; geolocation of network devices and nodes; techniques for inferring additional system details; techniques to increase the speed of mapping and discovery; software reverse engineering and vulnerability analysis; network data collection and analysis; and new innovative defensive techniques against cyber-attacks—especially in virtual environments, and integrated cloud security capabilities.

Attachment 2: Naval Operational Challenge Areas

NAVAIR

Title: 1. NAVAIR: Reduced Total Ownership Cost

Military System or Acquisition Program Customer: NAVAIR PEOs/PMs and Joint Strike Fighter **Description:** The increasing Total Ownership Cost (TOC) of naval platforms threatens the ability to recapitalize the aging in-service systems and acquire new systems in sufficient quantities to maintain required force structure. Technology advances that reduce development costs (e.g. modeling and simulation), target acquisition costs (e.g. manufacturing), and the cost of software development and test (e.g. automated testing) are needed. Technologies are needed that target Operations & Sustainment costs by reducing the maintenance burden through increased reliability or innovative corrosion prevention.

Title: 2. NAVAIR: Improved Navigation, Geolocation, and Precision Timing

Military System or Acquisition Program Customer: PEOs/PMs for fixed and rotary wing aircraft and PMW/A-170 - Navigation Systems Program Office

Description: Joint and coalition forces are dependent on precision navigation and timing to assure operational maneuver and weapons employment in all environments and with the highest possible confidence. There is a need for (1) affordable approaches to make GPS more reliable/robust, and (2) methods of quantifying threats to GPS performance that may be termed "situational awareness" and (3) affordable and reliable precision navigation/timing alternatives to GPS. Technologies are needed to improve GPS protection, timing, GPS-related positioning and robustness, and organic navigational capabilities (i.e. inertial, celestial, earth magnetic, etc.) that are independent of outside signals.

Title: 3. NAVAIR: High Bandwidth, Beyond Line of Sight (BLOS) Capabilities for Rotary Wing Aircraft

Military System or Acquisition Program Customer: PEOs/PMs for manned and unmanned rotary wing aircraft

Description: To fully realize the vision of automated collaboration at the machine-to-machine level, combat Rotary Wing platforms require high bandwidth (14-20 Mb/s), seamless, scalable, and interoperable communications that ensure secure and timely distribution of information for managing the efficient employment of sensors, platforms, weapons and relays. Common, flexible, reliable, and sustainable through-the-rotor BLOS technologies are needed that enable rotary wing platforms to communicate BLOS.

Title: 4. NAVAIR: Interoperability and Open Architecture

Military System or Acquisition Program Customer: PEOs/PMs for all Naval aviation aircraft **Description:** New capabilities and upgrades are costly and take too long to field. There are barriers to software portability and a lack of enforcement of established interoperability and open architecture (OA) requirements. Technologies are needed that will enable OA, Integrated Modular Avionics (IMA) and Modular Open Systems Approach (MOSA) which are portable, modular, partitioned, scalable, extendable, and secure.

Title: 5. NAVAIR: Advanced Sensors for Naval Aircraft

Military System or Acquisition Program Customer: PEOs/PMs for all Naval aviation aircraft **Description:** Technologies are needed to conduct wide area search / surveillance; localize / fix; identify friendly / neutral / hostile targets at standoff ranges in all weather conditions. Software-definable and flexible sensors usable across multiple mission areas are desired.

Title: 6. NAVAIR: Advanced Training Systems for Aircraft Operators and Maintainers

Military System or Acquisition Program Customer: PMA-205 – Naval Aviation Training

Systems Program Office

Description: Increasing mission complexity, asymmetric warfare, high live / range exercise costs and growing operational demands require new high fidelity training environments, and fully linked training and readiness competencies to achieve operator / maintainer qualifications and proficiency while reducing life-cycle cost drivers. Education and training technologies are needed to cost-effectively maximize transfer of knowledge from the classroom and trainer to the operational environment.

USMC Systems Command

Title: 7. USMC: Provide Surface Assault Transport During Amphibious Maneuver

Military System or Acquisition Program Customer: Program Manager, Advanced Amphibious Assault Vehicles

Description: Technologies are needed to facilitate a high water speed, survivable amphibious assault vehicle including technologies that improve the weight margin and lower cost. Examples include lightweight, affordable armors, lightweight/affordable vehicular environmental control systems, lightweight/affordable track components, lightweight/affordable suspension components, and lightweight/affordable drive train components.

Title: 8. USMC: Standoff Explosive Hazard Detection

Military System or Acquisition Program Customer: Program Manager, Combat Support Systems **Description:** Require capability to detect explosive hazards (e.g., mines, improvised explosive devices (IEDs), unexploded ordnance (UXO)) at standoff distances both mounted and dismounted.

Title: 9. USMC: Representation of Man Made Structures to Show Battle Damage in an Augmented Reality Training System

Military System or Acquisition Program Customer: Program Manager, Training Systems Infantry Immersive Trainer, Deployable Virtual Training Environment and Squad Immersive Training Environments

Description: Develop and demonstrate an augmented reality capability that allows representation of fixed objects (e.g., buildings, towers, power-lines) from a synthetic terrain environment and ability to overlay those objects within the augmented reality display. The augmented reality capability shall display the normal, destroyed, and damaged state of the fixed objects based upon the state of the object in the synthetic environment.

Title: 10. USMC: Interactive Culturally Accurate Avatar

Military System or Acquisition Program Customer: PM TRASYS Infantry Immersive Trainer, Deployable Virtual Training Environment and Squad Immersive Training Environments; Marine Expeditionary Rifle Squad (MERS) Operational Environment Simulator

Description: Develop and demonstrate virtual avatars that are representative of the indigenous populations found around the world. These avatars shall be capable of interacting with the trainee in a manner that is culturally accurate for the area and the societal role that the avatar personifies.

Title: 11. USMC: Combat Clothing with Fragmentation Protection

Military System or Acquisition Program Customer: PM Infantry Weapon Systems

Description: Currently Marines are protected by a layered system including combat clothing, plate carrier, and armor plates. If we could integrate the protection into the sub layers we can reduce the weight and increase the area of coverage without reducing agility. In order to regain the agility of warfighters the Marine Corps is interested in development and demonstration of clothing with fragmentation protection.

SPAWAR

Title: 12. SPAWAR: Enhanced ISR/C2 Applications and Services

Military System or Acquisition Program Customer: CCOP, SSEE-F, DCGS-N, MTC2, NTCSS, CANES (PEO C4I)

Description:

- Develop capabilities for Electronic Attack (EA), Electronic Protection (EP), exploitation of
 emerging signals, and ISR exploitation including: automated target recognition and
 annotation for Full Motion Video (FMV), exploitation of audio signals, detection/prediction
 of anomalous behavior, and characterization of environmental effects on communications and
 sensors.
- Develop secure, scalable, bandwidth-sensitive services and Information Assurance (IA) capabilities in support of ashore and afloat tactical cloud and Disconnected, Intermittent, Low-bandwidth (DIL) environments, to include Identity and Access Management (IDAM), data tagging and access control, and encryption of data at rest and data in motion.
- Develop capabilities for universal data discovery and access, automated data fusion and integration, improved display and visualization, advanced analytics, user-centric designs, trend analysis, prediction tools, and targeting tools.

Title: 13. SPAWAR: Robust Networks, Communications, and Cyber

Military System or Acquisition Program Customer: ADNS, CANES, NMT, CDL, AdvHDR, Link 16, TSw, DJC2, CND (PEO C4I)

Description:

• Develop disruption tolerant networks; high precision Position, Navigation and Timing (PNT); dynamic ad-hoc network technologies; and multi-tiered communications architectures including technologies for mitigation of Electromagnetic Interference (EMI) and SATCOM denial.

- Improve data rate throughput and/or effective bandwidth through network control and improvements in the antenna, terminal, waveform, or Quality of Service (QoS).
- Provide technologies for computer network attack, computer network exploitation, and selfadapting Computer Network Defense (CND) including capabilities to detect and eradicate advanced persistent threats (APTs) across consolidated networks and multiple security domains.

Title: 14. SPAWAR: UHF SATCOM Resiliency

Military System or Acquisition Program Customer: PEO Space Systems

Description: Provide Naval forces increased awareness of and assured communications through the space and man-made environments using Ultra High Frequency (UHF) Satellite Communications (SATCOM). Tools are needed to automatically monitor the electromagnetic spectrum, characterize signals, distinguish interferers, and provide actionable information for Naval forces to respond. Other technologies that increase the resiliency of UHF SATCOM systems to interference, such as adaptive filtering, are also of interest.

Title: 15. SPAWAR: Automated Code Analysis, Verification and Validation, and Data Interface and Extract, Transform, and Load (ETL) capabilities

Military System or Acquisition Program Customer: OPNAV N1 MPT&E systems, SeaWarrior, DON TRACKER, RMI, NJIS, NGEN, SCES, Navy ERP, GCSS MC (PEO EIS)

Description: Provide a comprehensive capability to perform, monitor, compare, and track code analysis and automated unit test results over the entire software development lifecycle in Defense Business Systems to include software assurance and software supply chain risks to identify potential software cyber security threats. Enable definition and collection of standardized software metrics from holistic project and program level views to facilitate Software Process Improvement Initiative (SPII), Continuous Process Improvement (CPI) and Lean Six Sigma (LSS) initiatives, including Business Process Management and Semantic Technologies, as well as the improvement of tailored, managed system engineering processes.

Title: 16. SPAWAR: Total Ownership Cost Reduction

Military System or Acquisition Program Customer: SPAWAR Fleet Readiness Directorate, PEO C4I, PEO EIS, PEO Space Systems

Description: SPAWAR seeks technologies and products to reduce Total Ownership Costs (TOC) through reductions in procurement and sustainment costs. Technologies are sought that improve reliability and operational readiness; that reduce or mitigate system or component obsolescence; that reduce maintenance, manpower and training costs; or that extend service life. In addition, technologies are required that provide scalable energy solutions for diverse environments and reduce energy consumption through greater efficiency and power management.

Title: 17. SPAWAR: Nanosatellite Communications

Military System or Acquisition Program Customer: PEO Space Systems

Description: Provide Naval forces low latency communication capabilities using CubeSats or nanosatellites that utilize existing relays and/or ground terminals to reduce costs. Provide a complete end-to-end solution including a complete spacecraft, command and control solution, link encryption,

and other enhanced capabilities. Note that SPAWAR requires end-to-end solutions; there are no requirements for individual components or subsystems.

NAVSUP

Title: 18. NAVSUP: QOL Services Modernization & Cost Reduction

Military System or Acquisition Program Customer: NAVSUP Program Managers support all inservice Navy capabilities through efficient and effective logistics management and support efforts **Description:** In many cases NAVSUP Quality of Life (QOL) services are inefficient, costly to operate, and lack easy access to the comprehensive information required to make informed management decisions impacting execution of routine supporting business processes. Capabilities are required in areas such as enhanced data integration of subsistence, retail, postal, laundry, vending, barbershop, household goods and disbursing/Navy Cash to: 1) improve services; 2) offer additional desired features (such as those which would improve supporting information systems, security,

Title: 19. NAVSUP: Readiness through Logistics Solutions

health, etc...); and 3) reduce total ownership costs.

Military System or Acquisition Program Customer: NAVSUP Program Managers support all inservice Navy capabilities through efficient and effective logistics management and support efforts **Description:** Supply chain improvements are required to support Naval logistics efficiency, Fleet readiness, and cost savings. Technologies are sought that can improve DoN naval logistics in any stage of a DoN program of record (e.g., manufacture, storage, delivery, use, maintenance, and disposal).

SSP

Title: 20. SSP: Navigation Subsystem Geophysical Filter Architecture

Military System or Acquisition Program Customer: Strategic Systems Programs (SSP), Strategic Weapons Systems

Description: As part of the SSBN Navigation Subsystem, SSP has historically developed a bathymetric map-matching capability and GPS. However, with the growing threat of navigation warfare and GPS denial, SSP has a need for improved fix technology to achieve: improved fix accuracy; increased availability of fix; minimized operational restrictions (e.g., heading, depth, speed); and reduced time to obtain a fix.

Title: 21. SSP: Unmanned Off-board Sensors for Broad Ocean Area Weapon Testing
Military System or Acquisition Program Customer: Strategic Systems Programs (SSP), Strategic
Weapons Systems

Description: Affordable COTS/MOTS radar, optics, telemetry, and acoustic sensors suitable for unmanned broad ocean area weapon testing from a multi-sensor unmanned surface vehicle (MUSV). Sensors shall minimize power and stabilization requirements, employ a modular design to facilitate performance improvements as technology evolves, use NSA-approved encryption for classified data

handling, and provide for detailed built-in self-test (BIST) to facilitate self-calibration, positive control, and situational awareness from remote command and control facilities.

NAVSEA

Title: 22. NAVSEA: Operations, Readiness, and Maintenance Cost

Military System or Acquisition Program Customer: NAVSEA PEOs/PMs for Ships, Submarines, Aircraft Carriers, Littoral Combat Ships, Integrated Warfare Systems, Expeditionary Forces, Special Warfare, and Naval (Public) Shipyards

Description: NAVSEA seeks technologies and products that reduce the cost to operate and maintain the Navy's fleet and weapons systems while improving reliability and operational readiness. Goals include: reducing fleet workload, improving weapon system readiness, mitigating environmental effects, reducing obsolescence, improving energy efficiency, and reducing maintenance cost and time.

Title: 23. NAVSEA: Development and Acquisition Costs

Military System or Acquisition Program Customer: NAVSEA PEOs/PMs for Ships, Submarines, Aircraft Carriers, Littoral Combat Ships, Integrated Warfare Systems, Expeditionary Forces, Special Warfare, and Naval (Public) Shipyards

Description: NAVSEA seeks products, technologies and processes that reduce the cost and time required to develop, produce and update Navy Systems while improving performance, reliability and service life. Particular areas of interest include: realizing the benefits of modular and flexible infrastructure approaches, shipbuilding technologies, improving weapons systems maintainability and adaptability, improving energy efficiency, and improving shipyard productivity.

Title: 24. NAVSEA: System Performance and Capability

Military System or Acquisition Program Customer: NAVSEA PEOs/PMs for Ships, Submarines, Aircraft Carriers, Littoral Combat Ships, Integrated Warfare Systems, Expeditionary Forces, and Special Warfare

Description: NAVSEA seeks products and technologies that enhance the effectiveness of the warfighter by improving planning, mission capabilities and adaptability. Improvements are needed in the areas of improved safety, weapon system performance to meet evolving threats, improved situational awareness, signature reduction, enhanced communication, interoperability, and streamlined logistical support.

Title: 25. NAVSEA: Unique and Special Capabilities

Military System or Acquisition Program Customer: NAVSEA PEOs/PMs for Ships, Submarines, Aircraft Carriers, Littoral Combat Ships, Integrated Warfare Systems, Expeditionary Forces, and Special Warfare

Description: NAVSEA seeks products and technologies that improve its support of unique and advanced technology missions. These missions include the use of autonomous and remotely controlled assets for expeditionary and special operations missions in surface, underwater and inshore environments. These missions also include response to non-routine events, Explosive Ordnance Disposal (EOD), Anti-Terrorism, and diver protection.

Title: 26. NAVSEA: NAVSEA Specific Operational Needs

Military System or Acquisition Program Customer: NAVSEA PEOs/PMs for Ships, Submarines, Aircraft Carriers, Littoral Combat Ships, Integrated Warfare Systems, Expeditionary Forces, and Special Warfare

Description: In addition to the above identified areas of interest, NAVSEA has identified a number of specific areas where advances are needed. The following are not in priority order:

- Improved Thin Line Towed Arrays.
- Submarine real-time covert ISR in inoperable water
- Surface ship torpedo self-defense (hard and soft kill solutions)

NAVFAC

Title: 27. NAVFAC: Perimeter/Enclave Force Protection

Military System or Acquisition Program Customer: NAVFAC Anti-Terrorism/Force Protection (AT/FP) Ashore – Airfield Enclaves

Description: Demonstrate all-weather, high-resolution, perimeter detection sensor with automatic target classification capability to support Detect-Classify-Track architecture. Provide the ability to operate along the land-water interface, including tidal zones, to protect critical Naval infrastructure. Technologies of interest may include array sensors with advanced signal processing capabilities, such as is commonly contained in surveillance radar and sonar.

Title: 28. NAVFAC: Full Field Concrete Assessment of Waterfront Facilities

Military System or Acquisition Program Customer: NAVFAC MILCON Program; Waterfront Underwater Inspection Program

Description: While concrete may show no visible defects, it may have subsurface degradation and/or softness due to micro-cracks or other causes. NAVFAC seeks materials, technologies, and structural approaches that can be used to locate and determine the degree of damage. NAVFAC's goal is to accurately identify concrete for removal and replacement in waterfront repair projects.

<u>Attachment 3: Quad Chart PowerPoint Template (Separate Attachment)</u>

Whether using PowerPoint template, Word template, or another source, save and submit in PDF with file naming convention being "Quad_Offeror's Organization Name_Proposed Project Title," e.g. Quad_ACME Inc._Shipboard Electrical System.

WHITE PAPER TEMPLATE QUAD CHART FORMAT (limit to 1 page)

SEE SEPARATE POWER POINT ATTACHMENT

Recommend creation as PowerPoint.



Title of Project, Company Name (Arial 24 pt Bold)

NOTE: All information in four quadrants shall be in 12-point Arial Normal

Insert Pictures of Item

and/or

High-Level Operational Graphic

Technology Description

- BRIEF and to the point
- Few bullets in non-technical/plain English
- Technology Readiness Level (TRL) at beginning and end of Rapid Innovation Fund development

The "So What"

- Cite relevant Naval Operational Challenge Area from Attachment 2
- Specific outcome benefitting the War fighter
- Name the targeted acquisition program and organizational owner, e.g., NAVAIR / Airborne Electronic Attack and EA-6B Program Office (PMA-234)

Project Objective and Scope:

Key Deliverables:

- Data (specific)
- Hardware (specific)
- Software (specific)
- Other

Key Subcontractors:

Registered with System for Award Management (SAM)? (Yes/No)

Related SBIR or Other Government Contract #/#s (if applicable):

Proposed Funding (\$M): \$____

Notional Project Schedule Milestones:

(Can be a simplified Gantt Chart)